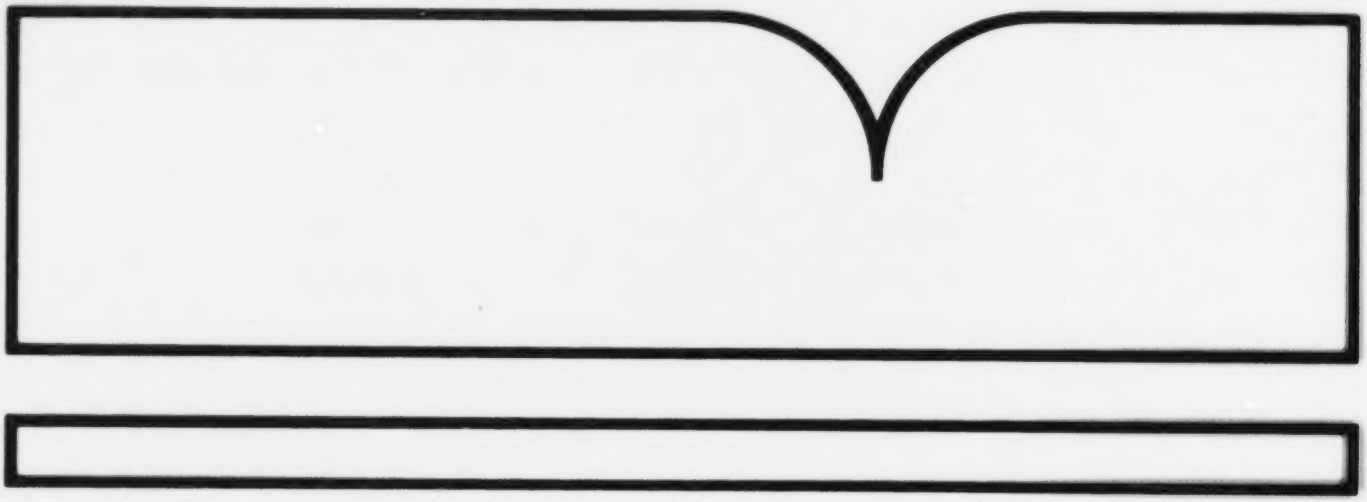
PB88-218797

Pesticide Fact Sheet Number 159: Assert

(U.S.) Environmental Protection Agency
Washington, DC

Apr 88



U.S. Department of Commerce
National Technical Information Service
NTIS

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO.	2.	3. PB88-218797

4. Title and Subtitle EPA Pesticide Fact Sheets - Assert No. 159	5. Report Date April 1988 6.
7. Author(s) EPA, Office of Pesticide Programs, Registration Division	8. Performing Organization Rept. No. 540/FS-88-065
9. Performing Organization Name and Address U.S. Environmental Protection Agency Office of Pesticide Programs Registration Division (TS-767C) 401 M Street, SW Washington, D.C. 20460	10. Project/Task/Work Unit No. 11. Contract(C) or Grant(G) No. (C) (G)
12. Sponsoring Organization Name and Address Same as #9	13. Type of Report & Period Covered 14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

This document contains up-to-date chemical information, including a summary of the Agency's regulatory position and rationale, on a specific pesticide or group of pesticides. A Fact Sheet is issued after one of the the following actions has occurred.

1. Issuance or reissuance of a registration standard,
2. Issuance of each special review document,
3. Registration of a significantly changed use pattern,
4. Registration of a new chemical, or
5. An immediate need for information to resolve controversial issues relating to a specific chemical or use pattern.

17. Document Analysis a. Descriptors

Pesticides, regulations, Chemical Information Fact Sheet, Use Patterns, science findings.

b. Identifiers/Open-Ended Terms

REPRODUCED BY
U.S. DEPARTMENT OF COMMERCE
National Technical Information Service
SPRINGFIELD, VA. 22161

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
Publicly Available	Unclassified	7
	20. Security Class (This Page) Unclassified	22. Price A02 9.95

United States
Environmental Protection
Agency

Office of Pesticides and Toxic Substances
Office of Pesticide Programs (TS-766C)
Washington, DC 20460

540/FS-88-065

EPA

Pesticide Fact Sheet

Name of Chemical: ASSERT
Reason for Issuance: New Chemical Registration
Date Issued: April 1988
Fact Sheet Number: 159

1. Description of Chemical

Chemical Name: A mixture of methyl-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)-p-toluate and methyl-6-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)-m-toluate

CAS Number:

Trade Name: ASSERT Herbicide

EPA Shaughnessy Codes: 128842 and 128843

Year of Initial Registration: 1988

Pesticide Type: Herbicide

U.S. and Foreign Producers: American Cyanamid Company

2. Use Patterns and Formulations

Application Sites: Sunflowers, Wheat and Barley

Types and Formulations: Liquid Concentrate

Types and Methods of Application: The product is applied as a postemergence spray by air or ground equipment.

Applicate Rates: 0.18 to 0.46 lb ai/acre.

Usual Carrier: Water

3. Science Findings:

Summary Science Statement: All data required for registration of this chemical are acceptable to the Agency. However, an additional field dissipation study is being required due to leaching potential. The current data base does not suggest any major toxicological problems. Acute toxicology data on the technical grade active ingredient indicate that the chemical is extremely caustic and corrosive. The toxicology category is I (Danger), based on primary eye and skin irritation studies.

Chemical Characteristics:

Physical State: Solid

Color: Off white to pale yellow

Odor: Musty odor

Melting Point: 113 °C - 153 °C (Range due to isomer ratio and effects of impurities)

Density: 0.3 g/ml at 20 °C

Solubility: 875 ppm water; p-isomer 875 ppm in water at 25 °C; m-isomer 1370 ppm in water at 25 °C

Dissociation Constant (Pka) 2.9 at 23.5 °C

Octanol/Water Partition Coefficient: p-isomer 35
m-isomer 66

Stability: Technical material was stable for 2 years at ambient temperature.

Toxicology Characteristics:

Acute Toxicity: (End-use products)

Acute Oral Toxicity (Rat): Greater than (>) 5000 milligrams/ kilogram (mg/kg),Toxicity Category IV 1/

Acute Dermal Toxicity (Rabbit): Greater than 2000 mg/kg, Toxicity Category III 1/

Primary Eye Irritation (Rabbit): Toxicity Category III 1/

Primary Dermal Irritation (Rabbit): Toxicity Category III 1/

Acute Inhalation Toxicity (Rat): Greater than 518 mg/l Toxicity Category IV 1/

Dermal Sensitization (Guinea Pig): Not a sensitizer

Major Routes of Exposure: The major routes of expsoure are via dermal and eye contact.

Chronic Toxicity: 90-Day Feeding Study (Rat) resulted in a no-observable-effect level (NOEL) of 1000 ppm.

1/ Labeling statements required for: Toxicity Category III for acute dermal - "Harmful if absorbed through skin. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling." Toxicity Category III for primary eye irritation - "Causes (moderate) eye injury (irritation). Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling." Toxicity Category IV - No precautionary statements required.

Major Routes of Exposures:

The Major routes of exposures are via dermal and eye contact.

Chronic Toxicity:

90-Day Feeding Study (rat) resulted in a (NOEL) of 1000 ppm.
One-year Feeding Study (dog) resulted in a NOEL of 1.25 mg/kg/day.
18-month Chronic Feeding/Oncogenicity Study (mice) resulted in a NOEL of 750 mg/kg/day and no oncogenic effects at 750 mg/kg/day for the hightest dose tested (HDT).
3-Generation Reproduction Study (rat) resulted in a maternal toxicity NOEL of 25 mg/kg/day, and a fetotoxic NOEL of 250 mg/kg/day.
Teratology Study (rat) resulted in a maternal toxicity NOEL of less than 250 mg/kg/day and a developmental toxicity LEL (lowest effect level) of 500 mg/kg/day.
Teratology Study (rabbit) resulted in a maternal toxicity of 750 mg/kg/day, and a developmental toxicity NOEL of 250 mg/kg/day.
Mutagenicity (in vivo bone marrow test) - Not mutagenic.
Mutagenicity (Ames test) - Not mutagenic.
Mutagenicity (unscheduled DNA synethsis activity) - Not mutagenic.

Physiological or Biochemical Behavioral Characteristics:

Foliar absorption: Rapid.

Translocation: Systemic after absorption through either the roots or foliage.

Mechanism of pesticidal action: Inhibits plant cell division of rapidly growing tips of roots and shoots by inhibition of amino acid synthesis.

Metabolism in Plants: Tolerant species metabolize the compound to nonherbicidal metabolites.

Environmental Characteristics:

Absorption in basic soils types: Assert was very weakly absorbed on the two sandy loam soils and on the two silt loam soils.

Environmental fate and surface and ground water contamination concerns: Assert has the potential to leach and contaminate groundwater at very low concentrations. Therefore, the Agency is requesting additional field dissipation studies.

Resultant Average Persistence: Assert has a half-life of 25 to 45 days in soil.

Ecological Characteristics:

Avian Acute Toxicity (Mallard Duck)	> 2150 mg/kg
Avian Dietary Toxicity (Bobwhite Quail)	> 5000 ppm
Avian Dietary Toxicity (Mallard Duck)	> 5000 ppm
96-Hour Fish Toxicity (Rainbow Trout)	> 100 mg/l
96-Hour Fish Toxicity (Bluegill Sunfish)	> 100 mg/l
48-Hour Invertebrate Toxicity (Daphnia magna	> 100 mg/l
48-Hour Acute Toxicity (Honey Bee)	> 100 ug/bee

Assert demonstrates negligible toxicity to birds on both an acute and dietary basis. It is nontoxic to fish and invertebrates. It is not expected to adversely affect endangered/threatened species because of low toxicity.

Tolerance Assessment:

The nature of the residue is adequately understood, and adequate analytical methods (gas-liquid chromatography with a nitrogen sensitive detector) are available for enforcement purposes. Tolerances are established for residues of the herbicide AC 222,293 [Assert, a mixture of methyl-2-(isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)-p-toluate and methyl-6-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)-m-toluate] in or on the raw agricultural commodities sunflower seed at 0.10 parts per million (ppm), wheat grain and barley grain at 0.10 ppm, and wheat straw and barley straw at 2.00 ppm. The acceptable daily intake (ADI) based on the 1-year dog feeding study (NOEL of 6.25 mg/kg/day) and using a hundredfold safety factor is calculated to be 0.0625 mg/kg/day. The theoretical maximum residue contribution for these tolerances for a diet is calculated to be 0.00147 mg/kg/day. The current action will use 2.35 percent of the ADI. There are no other published tolerances for this chemical.

4. Summary of Regulatory Position and Rationale

None of the risk criteria listed in 40 CFR 154.7 have been exceeded for Assert. The Agency will issue a registration for this product.

Rationale: A review of available data indicate that no risk criteria have been exceeded or met for Assert.

The Agency is not imposing a ground water advisory statement for Assert.

Rationale: As the study was carried out, no residues were detected below the 3-inch soil layer. If residues are found to leach within the soil the Agency will request more data.

Additional residue data are not required to support the use on wheat Straw.

Rationale: The Agency has determined that available residue data adequately support the established tolerance on wheat straw.

The agency is requiring additional field dissipation studies to be submitted by 1990.

Rationale: Assert has potential to leach and contaminate groundwater at very low concentrations.

4.Summary of Major Data Gaps

None.

6. Contact Person at EPA

Robert J. Taylor

Product Manager 25

Registration Division (TS-767C)

Office of Pesticide Programs

Environmental Protection Agency

401 M Street SW.

Washington, DC 20460

Telephone: (703) 557-1800

DISCLAIMER: The information presented in this pesticide fact sheet is for informational purposes only, and may not be used to fulfill data requirements for pesticide registration and reregistration.